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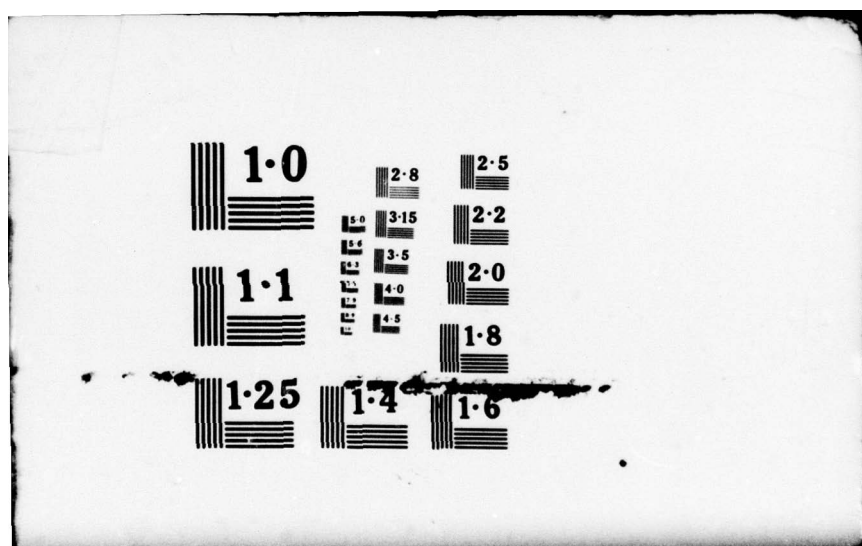
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FIFTEEN YEARS OF RESEARCH ON THE ATTITUDES AND PERFORMANCE OF MARINES

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A. HOMBERG & N. H. BERRY



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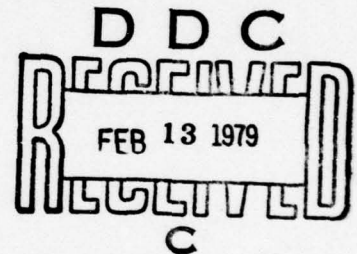
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Fifteen Years of Research on the Attitudes and
Performance of Marines

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Fifteen Years of Research on the Attitudes and
Performance of Marines

Abstract

→ The purpose of this study was to summarize results of research projects conducted on Marine Corps personnel during the last 15 years. This compilation of findings, abstracted from 26 papers, was divided into: (1) prediction of effectiveness, (2) recruit adjustment, (3) duty adjustment, and (4) thoughts about future research. Results showed that the completion of high school or higher levels of education were significantly related to 2- and 4-year effectiveness in the Corps as well as combat and post-psychiatric hospitalization adjustment. Other variables predictive of adjustment included: age, expulsions, arrests, aptitude scores, and evaluations of adjustment potential completed by principals of the last school attended, psychiatrists, Drill Instructors, and peers. Positive changes in recruits' attitudes and self-reported symptomatology occurred during recruit training. Recommendations for future research projects also are discussed.

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Fifteen Years of Research on the Attitudes and Performance of Marines

In 1960, Headquarters, Marine Corps, requested the Navy Neuropsychiatric Research Unit (now the Naval Health Research Center) to evaluate the psychiatric screening of Marine recruits at the two training depots, San Diego, California, and Parris Island, South Carolina. This request initiated the beginning of a cooperative relationship between the Corps and this research activity, one that has lasted, off and on, for 15 years. Since that first project, many studies have been conducted for the Marine Corps in various areas of concern and interest. The purpose of the present study is to summarize results of those research efforts, a compilation of findings spanning 15 years of work on recruit and duty adjustment. This discussion will be divided into the four categories of: (1) prediction of effectiveness, (2) recruit adjustment, (3) duty adjustment, and (4) thoughts about future research.

Before beginning, a paragraph should be included in which various terms are defined. In our discussion we will talk about Effective and Noneffective Marines as well as two categories of Noneffectiveness that include Chargeable Attrition and Administrative Nuisance. Comprising the Two-Year Effectiveness classification, a Marine was considered effective if, at the end of 2 years, he was on active duty and had made a satisfactory adjustment to the Corps. For the Four-Year Effectiveness criterion, an effective Marine was one who had completed the first enlistment with a recommendation for reenlistment. As one

facet of Noneffectiveness, on the other hand, the concept of Chargeable Attrition was used to describe an individual who had been separated from the Corps by reason of psychiatric disability, unsuitability, unfitness, misconduct, or court-martial. A Marine who completed his enlistment without being recommended for continuation was also considered noneffective. And finally, an individual who survived the first 2 years was classified as an Administrative Nuisance if he had one or more of the following characteristics: (1) he was an E-1, or (2) he had three or more Office Hours, or (3) he had at least one court-martial, or (4) his conduct marks were 3.9 or below (Berry & Nelson, 1966a).

Prediction of Effectiveness

Two-Year Effectiveness. In satisfying the first request to evaluate psychiatric screening procedures, a plan was proposed whereby four screening conditions were established that utilized varying degrees of involvement and assistance from the recruit psychiatric evaluation units. The sample consisted of 13,477 male enlistees who entered basic training at the two Marine Corps Recruit Depots between October, 1961, and September, 1962. At the end of 2 years, the four screening conditions were compared in terms of their relative efficiency in identifying recruits with low adjustment potential. With a sample total of 21.2%, the percentages of noneffectiveness across the four conditions fell within a range from 20.4 to 22.2, values that did not differ significantly (Berry, 1967). These results clearly showed that psychiatric screening did no real harm, nor did it contribute significantly to long-term predictions of Marine effectiveness. For this reason, it was recommended that

routine psychiatric screening be discontinued.

During the first 12 months of that study, considerable information on these Marines was collected. These data included measures of preservice social and school adjustment, aptitude scores, sociometric or "buddy" ratings, an evaluation by the Drill Instructor, and the initial psychiatric evaluation. These variables were used in statistical analyses as predictors of 2-year effectiveness (Berry & Nelson, Note 1). Even though analyses were performed separately for Chargeable Attrition (6% of the sample) and Administrative Nuisance (17% of the sample), the two indices of noneffectiveness also were combined for a third set of analyses. The most powerful predictor of effectiveness for each of the three analyses was education or, to be more specific, the completion of high school. Of special interest was the finding that the Drill Instructor rating, which identified the "poorest performing" recruits during the first two weeks of training, correlated significantly with being an Administrative Nuisance after 2 years.

Based upon these research efforts, a set of theoretical probabilities, indicating the likelihood that a recruit would be effective at the completion of 2 years active duty, was developed. An individual's probability can be determined if the following information is known: (1) Has the individual completed high school? (2) Was he expelled from school? (3) At what age did he enter the Marine Corps? (4) Was he given a high or low estimate of success at the recruit evaluation unit? and (5) Did he receive a high or low adjustment rating from his peers? Table 1 contains a set of theoretical probabilities,

developed on this 1961 to 1962 sample that could be applied to a sample of today's entrants.

Insert Table 1 about here.

Because the variable of education was found to be the most powerful predictor of effectiveness, Berry and Nelson (1966b) proposed a study to examine the success rate of high school graduates and dropouts. Their calculations showed that the percentage of effective Marines at 2 years was 91.0 for graduates, 74.0 for nongraduates who fulfilled GED requirements, and 60.0 for those not completing high school or the GED. The authors concluded that the important issue was not what a young man learned in high school that was predictive of success, but rather his completion of one program before he began another. The attainment of a high school diploma seemed to indicate that the individual had sufficient "stick-to-it-iveness" to accomplish an important goal in our society.

Four-Year Effectiveness. Although an important facet of this research project centered around the prediction of 2-year effectiveness, Headquarters, Marine Corps, decided that the study should be continued. At the time of that decision, a proportion of the sample had served under enemy fire. The project was extended to cover the first enlistment as a means of studying combat adjustment and predicting 4-year effectiveness. Therefore, after collecting discharge and reenlistment information on these Marines, a 4-year criterion

of effectiveness and noneffectiveness was created, using completion of the first enlistment with a recommendation for continuation as the definition of effectiveness. The four most powerful predictors of 4-year effectiveness included: (1) completing high school, (2) being evaluated by his last school principal as having the potential to succeed in the Corps, (3) having a record of no arrests for reasons other than traffic violations, and (4) being 19 years or older at the time of enlistment. Comparable with the 2-year effectiveness study, the single most efficient predictor of the 4-year criterion was being a high school graduate. Based upon information for these four predictors, a set of theoretical probabilities, as shown in Table 2, was developed that could be used to determine a man's chances that he would complete the first enlistment and be recommended for reenlistment (Berry & Nelson, Note 2).

Insert Table 2 about here.

Recruit Adjustment

Three samples of recruits participated in evaluations of changes that occurred during the highly demanding and stressful recruit training experience. Changes in attitudes and self-reported indicators of stress were studied. In comparisons of recruits' attitudes across the 1960's, attitude questionnaires had been completed by three samples of recruits who enlisted in 1961, 1967, or 1969.

Changes in Attitudes. After comparing attitude means collected on four

occasions during recruit training in 1967, Clum, Hoiberg, and Kole (1969) reported that recruits' attitudes became somewhat less favorable from the first to fourth test administration. When comparisons were made among the eight platoons, however, changes in a positive direction were observed for four of the platoons. Other results showed that positive changes in attitudes were obtained for recruits characterized as young, of below average intelligence, and from a family of lower socioeconomic status. Enlistees who had higher levels of aptitude scores and years of schooling seemed to be more stable in their attitudes; their means tended to remain within a narrow range across test administrations. The largest correlation between a predictor and the criterion of positive attitude change was obtained for the variable of platoon membership. Somewhat similarly, Nelson and Berry (1968) found that platoons below the median on cohesion had significantly less favorable attitudes toward the Corps than other platoons.

In a project comparable in design to the 1967 attitude study, Booth and Hoiberg (1973) administered a 96-item attitude questionnaire on four occasions to eight Marine recruit platoons during the fall of 1969. As contrasted with the earlier study, changes in attitudes were found to be in a positive direction across test administrations. When compared with attitude means for Drill Instructors, recruits' means for two subscales approached the values of the Drill Instructors whereas recruit attitudes on the other two subscales became even more favorable than those of their Drill Instructors. Recruits' characteristics such as age, education, and aptitude were not related to changes in

attitudes.

As a means of identifying similarities and differences in Marine Corps recruits who enlisted during the 1960's, comparisons of attitudes and characteristics were conducted across the three samples. Recruits who began training in 1961 had the most favorable attitudes whereas recruits' attitudes were the least favorable for the 1967 sample. Other findings, reported by Hoiberg and Booth (Note 3), indicated that the typical 1967 recruit was characterized as having attained a higher level of schooling and higher aptitude scores than average recruits from 1961 and 1969. Since many societal and political changes were evidenced during that decade, the authors concluded that training procedures may require modifications to correspond with social change as well as fluctuations in recruits' characteristics.

Changes in Medical and Emotional Symptoms. In another study on changes during training, recruit responses to the Cornell Medical Index were compared across four administrations for the purpose of determining whether or not a reduction occurred over time in self-reported physical and emotional symptoms (Clum, Plag, & Kole, 1968). Such comparisons across administrations showed a significant decrease in number of symptoms. Because the final scores did not differentiate this sample from those Marines who completed the questionnaire on one occasion, the decline was interpreted as a decrease in subjective distress rather than attributable to test-taking effects. Individuals who responded fairly consistently across test administrations tended to be older, more intelligent, and from a family of a higher socioeconomic level than was

found for others. These results showed, along with the attitude change findings, that older, more intelligent recruits seemed to be more stable than others in their responses across administrations.

The stability of the Cornell Medical Index was studied by comparing responses to those items that reflected historical facts or current symptoms (Clum, Kole, Plag, & Hoiberg, 1970). A decrease in number of all symptoms occurred across administrations, although changes on the historical items were less than those of a more subjective nature. Such results suggested the following interpretations: (1) an actual improvement was evidenced in health and well-being, (2) a reduction of stress occurred, or (3) many recruits denied current symptoms or past ill health (as a recruit identified more strongly with being a Marine, he may have felt that Marines are invincible).

Special Training. Even though the Marine Corps has developed recruit training procedures through which its mostly unskilled enlistees can proceed satisfactorily, many recruits experience difficulty which necessitates the assignment of these individuals to a special training program. In a study of a physical conditioning platoon, Hoiberg (1975) reported that the effects of such participation were reflected by improvements in attitudes toward the Marine Corps, self-evaluations of physical attributes, and feelings toward their personality characteristics. Other findings showed that 36% of these participants were discharged from the Marine Corps during training (Hoiberg, 1978). Although this percentage represented a high rate of attrition, as compared with approximately 12% for all recruits at the San Diego Depot, the pro-

gram provided these physically marginal and overweight recruits with an opportunity to become Marines. Variables found to be predictive of successful completion of recruit training indicated that physical conditioning participants who responded that they enjoyed physical activities, were motivated to succeed, and identified with being a Marine were more likely than others to graduate from recruit training.

Duty Adjustment

Peer Relationships. The relationship of one Marine to another is of critical importance to combat effectiveness. For this reason, a series of studies were conducted exploring the usefulness of sociometric or "buddy" ratings to the Corps. As mentioned above, the second-week peer nomination of adjustment potential was an important predictor of 2-year effectiveness. Along with listing recruits with high and low adjustment potential, enlistees also were asked to identify the five men in their platoon who would be the best Marines and five who would make the least desirable Marines as well as the five most well-liked and five least-liked peers. These nominations also were collected during the 10th week of training. After 2 years on active duty, the computer file showed that 101 of the original sample were assigned to the same battalion. Permission was granted for these men to complete forms on which they were asked to select the five most and the five least preferred men as members of a work team and going on liberty with, as well as 10 men each would choose to form a combat patrol team. Because all of these measures were significantly inter-related, the results suggested that as early as two weeks after enlistment

recruits can estimate the subsequent adjustment capabilities of others, both at the 10th week of training and after 2 years in service (Nelson & Berry, 1965a).

Nelson and Berry (1965b) also related the recruit sociometric ratings with 2-year conduct and proficiency ratings. Results showed that second week scores correlated more strongly with conduct marks while 10th week measures were related to proficiency ratings. In another study, Nelson and Berry (Note 4) compared the relationships of supervisor ratings and peer nominations with 2-year conduct and proficiency marks. These results indicated that supervisor ratings were significantly associated with both conduct and proficiency while 2-year peer nominations correlated only with the conduct rating. Such findings suggested that supervisor ratings reflected an individual's competence on the job and peer nominations corresponded to the Marine's adherence to the organization's rules and regulations. These findings could be helpful in developing performance measures employing both supervisor and peer ratings. The authors also conducted a study on the similarities and differences in supervisor ratings among various levels of rank and status. Their results showed that agreement among supervisors in evaluating subordinates' performance was to some extent a function of the supervisors' status or rank (Berry, Nelson, & McNally, 1966).

Attitudes. For the 1961-1962 sample, two attitude measures, one collected after 10 weeks and the other after 2 years, were compared to obtain mean differences in attitudes over a period of 2 years. Both attitude scales, which consisted of 12 identical and other items, were designed to assess feelings

about superiors and toward the Marine Corps as an organization. Participants also responded on two single items that pertained to feelings about reenlistment and their mission. A statistically significant decline in favorability in attitudes occurred during the 2-year period. Even so, the means for both the recruit training and the 2-year administration were above the point of indifference and, therefore, denoted feelings of favorability. The highest means were obtained for attitudes toward superiors whereas the least favorable occurred in response to one's reenlistment intentions. Attitudes of Marines after 2 years in service tended to be more favorable for those of lower educational attainment who had higher pay grade levels and were assigned to the Infantryman specialty (Nelson & Berry, Note 5).

Combat Adjustment. Of the 6,134 Marines who received Superior Officer Ratings collected during the last year of the 4-year enlistment, 14% had been in combat, 3% had been observed in combat by the superior officer doing the ratings, and the others had not been under fire. Comparisons among the three groups showed that the values were more favorable than unfavorable; Marines who had been in combat received higher ratings of adjustment than those who had not been in combat (Berry & Nelson, Note 2). These Superior Officer Ratings seemed to be related to 4-year effectiveness. That is, 46.5% of those men who were classified as noneffective at the end of the 4-year enlistment were given below average ratings by their superior officers.

When the three groups of Marines were compared on Superior Officer Ratings, the results showed that Marines who were observed during combat had

higher ratings than Marines in combat but not observed who, in turn, had higher ratings than the others who had not been under fire. Even individuals who were categorized as Administrative Nuisances received higher Superior Officer Ratings if observed during combat than occurred for individuals not observed or not involved in combat. The author (Clum, 1968) concluded that Marines--even those who were considered as being of marginal quality--actually performed in an above average fashion under combat conditions.

In two studies designed to identify predictors of Superior Officer Ratings, the authors (Clum & Mahan, 1971; Mahan & Clum, 1971) reported that data collected at various phases in a man's career (pre-service, recruit training, and after 2 years) predicted combat effectiveness. Results showed that the older, better educated, more intelligent Marine, who had made a satisfactory military adjustment, was effective during combat. Attitudes assessed at the conclusion of recruit training and after 2 years of active duty also correlated significantly with combat effectiveness.

Psychiatric Problems in the Marine Corps. In 1967, the authors of the present report initiated a large project in which Navy and Marine Corps personnel who had been admitted for psychiatric care at any naval medical facility were asked to complete an extensive biographical questionnaire. Upon release from the psychiatric unit, each patient's diagnosis and disposition were recorded on the questionnaire by a member of the psychiatric staff and the form was returned to this activity. Results of analyses relating predictors to post-hospital success indicated that Caucasian Marines who had higher levels of education, age, pay grade, and length of service were the most successful

at readjusting to duty after hospitalization. Length of stay was also related to success; the longer the man was hospitalized the less likely it was that he would be effective after hospitalization (Berry, Edwards, Iorio, & Gunderson, Note 6; Berry & Edwards, Note 7). Clum and Hoiberg (1971) also reported that Marines assigned to mechanical occupational specialties had a high probability of making a successful adjustment after hospitalization.

Thoughts about Future Studies

Since many of our feelings about future research proposals will be based upon the results obtained from these previous studies, perhaps a précis of research conclusions would be helpful for the reader. This review has shown that for various criteria of adjustment the most important predictor of success was education. The completion of high school or higher levels of education were significantly related to 2- and 4-year effectiveness as well as to combat and post-psychiatric hospitalization adjustment (Hoiberg & Berry, 1978). Age at enlistment, expulsions from school, aptitude scores, and arrests also contributed to predictions of effectiveness. Four forms of evaluations were also found to be significantly related to effectiveness. They included a questionnaire completed by the principal from the recruit's last school, a psychiatric evaluation, a rating by the Drill Instructor, and peer nominations--all of which were collected during recruit training.

Changes in attitudes and self-reported symptomatology, assessed from the first to the fourth test administration, indicated that improvements occurred during the recruit training experience. Higher levels of education, while

predictive of effectiveness criteria, characterized individuals whose attitudes and number of symptoms fluctuated minimally during training. The effects of participation in physical conditioning were reflected by an increase in recruits' feelings about the Marine Corps and their physical and personality characteristics. Other findings showed that peer nominations correlated significantly over time and with conduct and proficiency ratings.

These results indicated that given specific knowledge about an individual, an estimate can be made of his chances of being an effective Marine during the first enlistment. While these findings provide the Marine Corps with the tools to estimate probabilities, other enlistee characteristics as yet untapped also may emerge as strong predictors of effectiveness criteria. Parenthetically, the variable of education, although the most powerful predictor, produced correlations between .18 and .28. Perhaps stronger relationships would result from predictors that measure motivation and feelings about physical activities, variables that were found to be predictive of completion of recruit training for those participants in the physical conditioning platoon. Of all variables included in the analyses, items that assessed an enjoyment of physical activities, a need to excel, and identification with being a Marine had the strongest association with graduation from recruit training. Because Marines dedicate their lives to being in excellent physical condition and to meeting the demands of the utmost in physical and mental stress, it seems likely that an instrument could be constructed that would help to identify individuals seeking such challenges.

Another fruitful area of exploration, one that we have not examined thus far, is that of studying characteristics related to success as a Drill Instructor. The Drill Instructor is honored as being among the most important of all posts in the Corps, a position that involves awesome responsibilities. Can we provide the Corps with a measure that determines the extent of pressure placed on Drill Instructors? Who can more readily withstand such pressure? What assistance can be given to those Drill Instructors who experience difficulty dealing with the stress of recruit training? In response to the last question, one recommendation consists of giving the Recruit Training Regiment Sergeant Major the means of identifying and counseling these men. Identification could be accomplished through peer ratings; every Drill Instructor, during regular intervals of training, would list the five best Drill Instructors and the five who seem to be having difficulties. If one name appeared quite frequently on the "problems roster," the Sergeant Major could then arrange an informal conference and attempt to assuage the difficulties.

Even though several other research ideas come to mind, such as the effects of physical fitness on health status or the role of chaplains and psychiatrists in the Corps, the selection of future research projects will grow out of Marine Corps needs. Based upon our research findings and capabilities, what areas can we explore that will satisfy those needs and benefit the Corps? Or, how can we best serve the Corps? In raising a number of questions for us to answer, perhaps the Marine Corps will again initiate the beginning of another 15 years of work with this research activity.

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Table 1
Theoretical Probability of Two-Year Effectiveness
Given Information on Education, School Expulsion,
Clinical Evaluations, and Age

<u>Education</u>	<u>School</u> <u>Expulsion</u>	<u>Clinical</u> <u>Evaluation</u>	<u>Age at Enlistment (Years)</u>		
			<u>17</u>	<u>18</u>	<u>≥19</u>
≥12 years	No	High	.86	.90	.94
		Low	.81	.85	.88
	Yes	High	.79	.83	.87
		Low	.74	.78	.82
≤11 years	No	High	.65	.68	.72
		Low	.60	.64	.67
	Yes	High	.57	.61	.65
		Low	.54	.57	.60

Table 2
Theoretical Probability of Four-Year Effectiveness
Given Information on Education, HSQ, Arrests, and Age

<u>Education</u>	<u>HSQ^a</u>	<u>Arrests</u>	<u>Age at Enlistment (Years)</u>		
			<u>17</u>	<u>18</u>	<u>≥19</u>
≥12 years	Good	None	.89	.92	.94
	Potential	≥ 1	.84	.86	.88
	Poor	None	.82	.84	.86
	Potential	≥ 1	.76	.78	.81
≤11 years	Good	None	.73	.76	.78
	Potential	≥ 1	.68	.70	.72
	Poor	None	.66	.68	.70
	Potential	≥ 1	.60	.62	.65

^aAn evaluation completed by the principal of the recruit's last school.

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